

CLAIMS

1. A multilayer positive temperature coefficient thermistor comprising a multilayer element main body including a plurality of stacked ceramic layers including a barium titanate semiconductor ceramic exhibiting a positive temperature characteristic of resistance and a plurality of internal electrodes including nickel, the internal electrodes being disposed at the interfaces of the ceramic layers,

wherein the conditions

$$5 \leq X \leq 18; \text{ and}$$

$$4 \leq X \cdot Y \leq 10$$

are satisfied, wherein X is a thickness (μm) of each ceramic layer between the internal electrodes and Y is a donor content (%) in the barium titanate semiconductor ceramic in terms of (number of donor atoms/number of Ti atoms) $\times 100$.

2. A method for designing a multilayer positive temperature coefficient thermistor comprising a multilayer element main body including a plurality of stacked ceramic layers including a barium titanate semiconductor ceramic exhibiting a positive temperature characteristic of resistance and a plurality of internal electrodes including nickel, the internal electrodes being disposed at the interfaces of the ceramic layers, the method comprising the steps of:

determining a thickness X (mm) of each ceramic layer so as to satisfy the condition $5 \leq X \leq 18$; and

determining the donor content Y (%) in the barium titanate semiconductor ceramic according to the thickness X so as to satisfy the condition $4 \leq X \cdot Y \leq 10$, wherein the donor content Y is in terms of (number of donor atoms/number of Ti atoms) $\times 100$.